APPENDIX

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REPORTS OF THE 35th ANNUAL MEETING OF THE AMERICAN SOCIETY FOR INFORMATION SCIENCE

Held in Washington, D.C., October 23-26, 1972

OVERVIEW

"A World of Information" was the theme of the 1972 American Society for Information Science Annual Meeting held in Washington, D.C. Speakers from around the world participated in the sessions which keynoted the international concern for communication. Each representative seemed to have his or her own definition of "information science" and each session presented a different aspect.

In one session librarians were concerned about handling books and card catalogs with or without the aid of a computer. Another session on governmental information systems in several countries emphasized the state-of-the art in public systems, policy information systems, and legislation drafting and control. Problems of inertia in funding programs and public access to information were discussed by an international panel. Still other sessions considered international and domestic networks with discussions on capabilities, problems, and experiences.

A working international information retrieval network on display in the exhibit area was one of the highlights of the meeting. The INTELSAT IV communication satellite provided a link from the terminals in the Ambassador Room of the Shoreham Hotel to the European Space Research Organization (ESRO) network in Darmstadt, Germany. In addition, several other information retrieval systems were on display with terminals available for use by those attending the meeting. [*Lee Power*]

SHAPING OF INTERNATIONAL INFORMATION SYSTEMS

The technical session on "Shaping of International Information Systems by Technology," chaired by Gerald J. Sophar, Executive Officer of the National Agricultural Library, was concerned with the evolution, current status, problems, and restraints involved in the attempts to apply modern computer and communications technology to the international exchange of scientific information.

Carl A. Wait, Assistant Science Advisor of the U.S. Mission to the Organization for Economic Cooperation and Development, provided the background for the session by reading his paper on "Information and Public Policy," a philosophical and historical essay. Noting that the magnitude and scope of such programs as atomic energy, defense, space, and environment had resulted in the change from discipline-oriented to mission-oriented systems of information, he cautioned that there is continuing danger that hardware rather than user needs will control systems development. Decision-makers need data for defining problems, assessing resources, and developing or determing methodology, and information systems must feed into all three; resultant decisions, however, can be no better than the information on which they are based. Decision-makers have to be persuaded to use sophisticated systems, but if the use is too time consuming and results in poor decisions, they will avoid it. And this is happening, particularly where communications and information systems are overloaded with too much data inadequately accessed. Mr. Wait concluded with a discussion of the contrast between use of information in problem solving in earlier, simpler societies and the complex society of today, another exposition of future shock.

The next paper, "Satellite Communications for Information Networking," by Burton I. Edelson, Assistant Director of COMSAT Laboratories, traced the development of satellite communication capabilities and capacities from the pioneer days to the present, described future potential, including such new concepts as SPADE which will allow multi-user access at any time without pre-contracting for channels and for a reasonable cost, and detailed some of the current uses of satellites in transmitting information.

N. E. C. Isotta, Head of the Document and Library Service, and Peter A. Kallenback, Space Documentation Service, both of the European Space Research Organization (ESRO), Darmstadt, Federal Republic of Germany, followed with complementary papers on the origin, development, social, economic, and legal problems, and future uses of the Space Documentation Service (SDS), an information network developed to assist 10 European countries in their space programs. The ESRO information network's future plans include the establishment of a European public

information utility which will provide the European scientist and engineer with direct access from private terminals to a variety of reference and data files.

The ESRO/SDS System was linked by satellite to an International Information Retrieval Network, a working model installed in the exhibit area at this ASIS meeting and available for attendees' reviewing and experimental use. The planning and development of this model were described by Douglas E. Berninger Management Information Specialist of the U.S. Office of Education who headed the group that worked out the arrangements.

The session closed with a discussion of "Copyright and its International Aspects" by George D. Cary, Register of Copyrights, who briefly reviewed the history of international copyright and described some of the aspects that may pertain to the development and implementation of international information networks. He stated that the copyright problem in this area is still in the future because high cost and limited transmission capabilities will prevent rapid progress but that there is the probability that copyright restrictions do apply and authorization from the holder is clearly required in advance of using copyrighted material.

[*Tony Harvey and S. Branson Marley*]

MODERN PARLIAMENTARY INFORMATION SYSTEMS

The technical session on "Modern Parliamentary Information Systems," was organized and chaired by Robert L. Chartrand, Specialist in Information Sciences, Congressional Research Service at the Library of Congress.

Invited speakers were: Uwe Thomas, Senior Counsultant, Bundeskanzleramt, Planungsabteilung, Bonn, Federal Republic of Germany, commenting on "Cooperation in Information Handling–Parliament and Administration;" Antonio Maccanico, Vice Secretary General of the Italian Chamber of Deputies, Rome, who was unable to attend, but did make available to the conference for publication in the meeting proceeding a paper on "Legislative-Legal Information Retrieval for the Italian Parliament;" Taro Nakayama, a member of the House of Councillors, The National Diet, Tokyo, speaking on "The Political System for an Informationized Society; and, John B. Poole, Deputy Assistant Librarian and Head of the Scientific Section, House of Commons Library, discussing "ADP in the British House of Commons."

Mr. Chartrand's opening remarks were in two parts. The first part identified the many problems facing parliaments and legislatures today: environmental, social, political, economic, and technological in nature; the vast information pertaining to these problems which must be brought under manageable control; the need for timely access and analysis of this information; and the translation of this information into viable policy decisions and actions. The second part of Mr. Chartrand's remarks concerned activities in the area of automation for the support of the U.S. Congress; he mentioned the activities of the Senate Subcommittee on Computer Services; the House Administration Committee; the General Accounting Office; the Library of Congress; and the Government Printing Office. Functional areas alluded to by Mr. Chartrand included: selective dissemination of information through the Congressional Research Service's document awareness system; bill digesting and legislative tracking; bill drafting and statutory retrieval; the automated maintenance and publication of Committee Legislative Calendars; electronic voting in the House of Representatives; the use of computer simulation, modelling, and other analytical techniques; constituent mailing maintained by Members of the Senate; and, efforts at implementing the statutory directives of the Legislative Reorganization Act of 1970 which specify standard budget and fiscal classifications for automated files of budgetary data.

Mr. Thomas began his remarks by contrasting the total system approach with that of developing individual systems, hopefully of inter-system compatibility, for the individual needs of the various components of the West German Federal Republic. These include the Federal Executive, the Bundestadt and its Members, Committees, floor proceedings and debates, and the statutes and regulations of West Germany. Mr. Thomas and several members of the audience had a spirited discussion of the problems of citizen access to this data and the general "freedom of information" considerations of western parliaments.

Mr. Nakayama's presentation was broader than that of the other speakers. With the assistance of slides of foils, he discussed the use of computer systems throughout the Japanese government and highlighted the current plans for automated information systems in the National Diet.

Mr. Poole's discussion of automation and the British Parliament concentrated on the House of Commons Library and its attempts to provide requisite research materials and timely bibliographic tools for use by Members. He wittily and urbanely discussed technical, financial, and cultural problems

which he faced in moving forward with augmented services for the House of Commons.

Mr. Chartrand concluded the session with references to commercial services such as the Congressional Information Service published in the United States. [*Tony Harvey*]

SIG/AUTOMATED LANGUAGE PROCESSING

The Special Interest Group/Automated Language Processing session was chaired by Donald Walker of the Stanford Research Institute who introduced William Nugent of the Office of Telecommunications, U.S. Department of Commerce, who, in turn, presented the speakers for the program, "The Fact and Fiction of Automated Language Processing."

The first speaker, Christine Montgomery of Operating Systems, Inc., gave a tutorial consisting of outlines of four current projects involving applications of computers to language data. The first was a dissemination system developed by Operating Systems, Inc., for the Central Intelligence Agency; the second, a system for on-line file generation and editing; the third, the Lunar Sciences Natural Language Information System developed by William Woods of Bolt, Beranek & Newman which, using as data the analyses presented at a conference on the Apollo rock samples, produces answers to natural language queries; and the fourth was "Scholar," an interactive system for teaching geography in high schools.

The second portion of the program included remarks by representatives of two Federal agencies that buy automated language processing research, Richard West, Extramural Programs, National Library of Medicine, and Z. L. Pankowitz of the Intelligence and Reconnaissance Division, Rome Air Development Center.

The third segment of the program consisted of short summaries of their current research by John Carroll of the University of Western Ontario and Donald Hillman of Lehigh University.

The final portion of the program consisted of results of the computerized political oratory contest. The only entry was a reference by Joseph Cauanaugh of the University of Chicago to a British recording. A short business meeting followed in which Hood Roberts of the Center for Applied Linguisitics was made the new SIG chairman and Mr. Nugent was made chairman-elect for 1973-74.

[*James E. Agenbroad*]

SIG/EDUCATION FOR INFORMATION SCIENCE

Four doctoral students who have completed their degrees in information science within the past year, and one who was about to complete his degree, presented and discussed their dissertations in a Special Interest Group/Education for Information Science panel. Three of the presentations are summarized in this report.

Drucilla M. Motley, Florida State University, spoke on "An On-line Computer-Managed Introduction of Indexing: An Individualized Multi-Media Instructional Package." A three-week instructional package on indexing was developed using Computer Assisted Instruction and the results from this package were compared against the traditional lecture method of presenting the same material. The tests were run twice for comparative purposes. Results tended to indicate that attitudes toward innovative techniques were more important than method, as test scores in either group did not differ significantly.

Hilda Feinberg, Columbia University spoke on "Title-Derivative Techniques; a Comparative Study." Current methods of preparing title indexes (i.e., KWIC, KWOC, etc.) suffer from human inconsistency, varying interpretations, consume unacceptable amounts of time and funds, and coverage of subject matter is uneven. Using computer generated, permuted indexes to overcome these mounting problems seems to offer acceptable results. Computer generated indices could provide consistency in format and content and could be done so that the time between document publication and title index publication is considerably shortened. Machine costs are seemingly more tolerable.

Daniel M. Murray, Rutgers University, spoke on "Document Retrieval From Clustered Files." Most search strategies today employ an inverted file technique which causes a 100 percent overhead on storage and Mr. Murray found this unacceptable. The major constraint on the depth and complexity of search strategies is the file organization chosen for the data base.

Present systems suffer from three major deficiencies: (1) indexing problems such as errors and inaccuracies in matching requests to documents; (2) relevance based on user judgment; and (3) lack of satisfactory retrievals due to vague or ambigious requests.

These three deficiencies are somewhat alleviated by using text rather than titles, applying significant values to index terms, using scoring and matching functions to show similarities, and presenting output in ranked order. However, all systems need to be able to respond on an interactive, iterative basis.

Adaptive retrieval techniques do provide relevant feedback and direct access to the documents vector rather than having it scattered over many parts of the data base.

Using a clustered document technique with a two-level hierachy, Mr. Murray received acceptable results while incurring only a 10 percent overhead. The classification procedure is hierarchical and must tend to be stable. After comparing inverted file techniques with document cluster techniques, Mr. Murray recommends the cluster as it provides a more flexible level of recall although it is less precise. This suggests that one should concentrate on those documents which have the greatest chance of meeting search requirements. [*Charlene Woody*]

SIG/NON-PRINT MEDIA PRESENTATION

A family enters a car. The father sits on his seatbelt. From the comments of the narrator and tone of the music you know something horrible will happen to this family. You conjure the images of crashes as multiple color slides focus on the cute, blond, girl of five, now hanging over the front seat to look at her daddy, and then in languid repose on the cushions in the rear. You are certain she will die. Suddenly the tension is fulfilled. A car shoots in from a side road. The father whips the wheel to the left. The car flips over the skids on its side giving forth the shrieks of shredding sheet metal. Black. The room is black. The three screens are black, the room silent. A small spotlight is switched on in the front of the room illuminating a man who tells us that media can involve. And so began the SIG/Non-Print Media presentation, "Educational Media and the Communications Generation," given by Harry R. McGee, Executive Vice President of the National Audio-Visual Association.

The media were color slides and color motion pictures shown on three screens simultaneously, taped narrative, taped music, and live narrative. The point of the sensuous bombardment that followed was the children of today are exposed to a great deal of sophisticated media. If the schools are going to gain the interest of these children they must use more audio-visual media for teaching. To illustrate this point we saw a number of natural phenomena which would be impossible or inconvenient for a student to observe without the aid of audio-visual media. Powdered charcoal exploded in slow motion, a flower blossomed, lions lounged in the shade near an African plain, a rotifera buzzed back and forth. Whether the members of the audience agreed with the point or not they at least came away from the experience with a firsthand demonstration of how the audio-visual media can be used to communicate information; their nerve ends were tingling with the message.

[*Alan Crosby*]

SIG/FOUNDATION OF INFORMATION SCIENCE

The ASIS meeting seemed to be summed up on the last day at the initial meeting and technical session of the Special Interest Group/Foundations of Information Science. This new group proposes to define "information science."

Lawrence B. Heilprin of the University of Maryland, the Chairman of SIG/FIS, opened the session with an ambitious plan. Everyone was encouraged to fill out a form, giving name, address, and area of interest. Before the meeting was over the forms had been collected, sorted, and task groups assigned. Each task group contained three or four persons with similar expressed interests and geographic area. The first assignment for the task groups will be to itemize the aspects of their area of interest as it impacts "information science." This is to be completed by next spring.

Papers were presented by the six panelists on the history and recent developments in Information Science. The major emphasis was on the development of cybernetics with implications of a broader base including linguistics, psychology, and other disciplines.

The papers served as a starting point when the floor was opened for debate. A psychologist, a cybernetician, an engineer, an English professor and others debated the meaning of the words "information" and "science," and whether any body of current knowledge deserves the title "information science." The discussion was lively and served mostly to emphasize the complexity of the task of defining "information science."

Objections were raised about the cybernetics foundations of "information science" because Shannon's definition of "information" was too narrow for the group's purposes. Some did not feel that the word "science" applied as there is no organized body of knowledge, no laws, no hypotheses, and no proofs to be challenged or verified through control experiments. That argument was rebuffed by the common use of such terms as social science and behavorial science.

The phychologist emphasized the aspects of human information exchange. The personality of a speaker influences the way he transmits information, his tone of voice, facial expression, and choice of

words often not saying what is really meant. Then the persons listening are influenced by his personality. They may perceive the "information" differently.

The linguist added aspects of a written language in information communications, rules of grammar and syntax, and the use of synonyms and antonyms. The engineer added aspects of electromechanical devices; the aspects of converting language to bits and bauds and back again.

After listening to all of this it was obvious that SIG/FIS and ASIS as a whole have taken on a very big subject—to create, organize, disseminate, and apply knowledge concerning information and its transfer. [*Lee Power*]